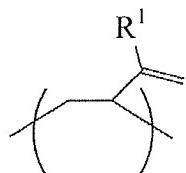


**AMENDMENTS TO THE CLAIMS**

1. (Currently amended) An isoprene-based polymer including a structural unit represented by Formula (I):



wherein R<sup>1</sup> represents an alkyl group having 1 to 10 carbon

atoms or an alkenyl group having 4-3 to 10 carbon atoms, wherein the isotacticity of an arrangement of the structural units is 60%mm or more in terms of triad content.

2. (Original) The polymer according to Claim 1, wherein R<sup>1</sup> in Formula (I) is a methyl group.

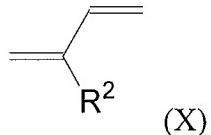
3. (Original) The polymer according to Claim 1, wherein the isotacticity is 99%mmmm or more in terms of pentad content.

4. (Original) The isoprene-based polymer according to Claim 1, wherein the rate of the structural units represented by Formula (I) in a microstructure is 95% or more.

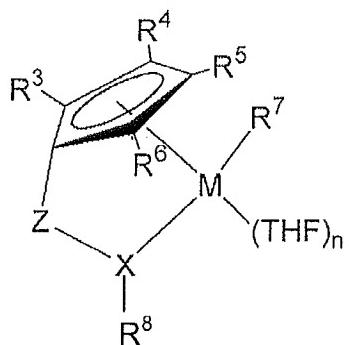
5. (Original) The polymer according to Claim 1, wherein the polymer has a number average molecular weight of 5,000 to 6,000,000.

6. (Currently amended) A production method for the isoprene-based polymer according to any one of Claims 1 to 5, which comprises;

polymerizing an isoprene-based compound represented by the following Formula (X):



wherein R<sup>2</sup> represents an alkyl group having 1 to 10 carbon atoms or an alkenyl group having 4 to 10 carbon atoms, in the presence of a polymerization catalyst containing a complex represented by the following Formula (A):



wherein M represents a rare-earth metal atom, each of R<sup>3</sup> to R<sup>6</sup> independently represents a hydrogen atom or an alkyl group, R<sup>7</sup> represents an alkyl group, R<sup>8</sup> represents an aryl or alkyl group, THF represents a tetrahydrofuran ligand, n denotes an integer of 0 to 2, X represents N, P, or As, and Z represents a dialkylsilylene, dialkyl germanium cross-linking, or an ethylene group.

7. (Original) The production method according to Claim 6, wherein R<sup>2</sup> in Formula (X) is a methyl group.

8. (Original) The production method according to Claim 6, wherein the polymerization is solution polymerization, and the polymerization reaction temperature is 0°C or lower.